## REMARKS

The Office Action dated February 19, 2008 has been received and carefully noted. The above amendments to the specification and claims, and the following remarks, are submitted as a full and complete response thereto.

The specification has been amended to more accurately describe the invention. Claim 3 has been amended to more particularly point out and distinctly claim the subject matter of the invention. No new matter has been added and no new issues are raised which require further consideration or search. Therefore, claims 1-3 are currently pending in the application and are respectfully submitted for consideration.

The Office Action objected to claims 2 and 3 because of minor informalities. Specifically, the Office Action objected to claim 2 because "the claim recites in line 3 that the index j runs from 1 to N, but the Applicant appears to have recited in their response that the index should run from 1 to N-K." The Office Action further objected to claim 3 because "the claims recites an array r having $N^3$ elements, but the indices p, i, and j appear to run from 0 to N, which would appear to require $(N+1)^3$ elements." (see Office Action at page 8).

Regarding claim 2, Applicants respectfully traverse the objection for the following reasons. As described in the specification, the first recurrence formula is expressed as "$b_j' = (-1)\{(2d)\, b_{j-1}' + (j-1)\, b_{j-2}'\} / (N-j+1)$ where $1 \leq j \leq N$" and that the resultant of the first operation is expressed as "$B'=\{1, b_1', \ldots, b_{N-K}', 0, \ldots, 0\}$" where the number of zeros is K. Thus, as described in the claims and the specification of the application, the

first recurrence formula, where $1 \leq j \leq N$, is run from j= 1 to j = N- K, where the number of zeros is K, to produce the sequence $B'=\{1, b_1', \ldots, b_{N-K}', 0, \ldots, 0\}$. (see Specification at paragraph 0050; claim 2). Thus, Applicants' statements in the previous response were addressing the expression of the resultant of the first operation when the first operation is run, not the expression of the first recurrence formula.

Thus, Applicants respectfully submit that claim 2 recites allowable subject matter, and respectfully request that the objection be withdrawn.

Regarding claim 3, Applicants have amended said claim to recite "the three-dimension array r having $(N+1)^3$ elements." Furthermore, Applicants have amended the specification accordingly. (see Specification at paragraph 0059). Accordingly, the amendment moots the objection, and Applicants respectfully request that the objection be withdrawn.

The Office Action rejected claim 2 under 35 U.S.C. §112, first paragraph, as allegedly failing to comply with the enablement requirement. Specifically, the Office Action took the position that the meaning of the double-subscripted term "$h_{i,j}^{(p)}$" does not appear to be described in the specification. (see Office Action at page 9). This rejection is respectfully traversed for the following reasons.

In response to Applicants' arguments in the Response filed on January 22, 2008, the Office Action stated, "[w]hile the Examiner appreciates the Applicant's argument, the index j appears to be undefined in both the specification and the claim 2. Further, the

recursion formulas appear to be defined in terms of $h_i^{(p)}$ so it is unclear how the $h_{i,j}^{(p)}$ are calculated." (see Office Action at page 3, "Response to Arguments").

Applicants respectfully disagree with the Office Action's position, and respectfully submit that the index j is defined in both the specification and claim 2. Specifically, the specification and claim 2 both recite that the first recurrence formula, is expressed as "$b_j' = (-1)\{(2d)\, b_{j-1}' + (j-1)\, b_{j-2}'\} / (N - j + 1)$ where $\mathbf{1 \leq j \leq N}$ with $b_0' = 1$ and $b_{-1} = 0$," and that the second recurrence formula is expressed as "$\mathbf{h_i^{(p)}} = (1 + E)\, h_i^{(p-1)} / 2 + (1 - E)\, h_{i-1}^{(p-1)} / 2$ where $1 \leq p \leq N$, $0 \leq i \leq p$." (see Specification at paragraphs 0011 and 0013; see also claim 2). Thus, one of ordinary skill in the art would readily understand that the term "$h_{i,j}^{(p)}$" is determined based on the definitions of "$h_i^{(p)}$" and "j," found both in the specification and claim 2.

Thus, Applicants respectfully submit that claim 2 recites allowable subject matter, and respectfully request that the rejection be withdrawn.

The Office Action rejected claim 3 under 35 U.S.C. §112, first paragraph, as allegedly failing to comply with the written description requirement. Specifically, the Office Action stated that "claim 3 recites a program embodied on a computer readable media," and that "the specification does not appear to recite a computer readable media." (see Office Action at page 9). This rejection is respectfully traversed for the following reasons.

Applicants respectfully submit that the specification of the present invention does disclose a computer-readable medium. Specifically, the specification discloses that a

computer executes the claimed operations. (see Specification at paragraphs 0010-0013). Thus, one of ordinary skill in the art would readily understand that instructions must be stored on a computer-readable medium, so that the computer can read the instructions in order to perform the claimed operations. Furthermore, the specification provides an example of a computer-readable medium by stating that, "[t]he algorithm is mostly suitable for real-time generation of the coefficients on a DSP chip because it may be easily implemented in a computational environment that has restrictions on the available hardware or software resources." (see Specification at paragraph 0074).

Therefore, Applicants respectfully submit that the specification discloses a computer-readable medium, and that claim 3 recites allowable subject matter. Thus, Applicants respectfully request that this rejection be withdrawn.

The Office Action rejected claims 1-3 under 35 U.S.C. §101 for being directed to non-statutory subject matter. (see Office Action at page 10). This rejection is respectfully traversed for the following reasons.

In response to Applicants' arguments in the Response filed on January 22, 2008, with respect to claim 1, the Office Action stated, "while the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. The Applicant appears to be reciting features from the specification rather than the claims. [F]or example ... the claim does not appear to recite that the numbers are stored on a computer readable medium." The Office Action further stated, "the invention appears to transform numbers into numbers, which is [a] manipulation of abstract ideas." (see

Office Action at page 5, "Response to Arguments"). The Office Action further stated, "the claim produces impulse response coefficients, which appear to be numbers, which are abstract ideas. Thus, the claim appears to be directed to an abstract idea. (see Office Action at page 6, "Response to Arguments").

Applicants respectfully submit that Applicants' arguments, as discussed in the Response filed January 22, 2008, are not merely reciting limitations that do not appear in the claims. Instead, the arguments illustrate that the recitation "method of computing finite impulse response (FIR) filter coefficients," which is recited in the claims, produces a tangible result (i.e. the impulse response coefficients), and supports a practical application (i.e. smoothing of digital data with a frequency response of maximally flat type). This is reflected by such claim limitations as "inputting a filter order of a universal maximally flat FIR filter," "provides coefficients in Bernstein form representation of a transfer function of the universal maximally flat FIR filter," and "extracting impulse response coefficients of the universal maximally flat FIR filter, from a resultant of the second operation," as recited in claim 1.

Furthermore, Applicants respectfully submit that the claims are not directed toward abstract ideas, or the manipulation of abstract ideas. Specifically, the impulse response coefficients produced by the method are not mere abstract ideas. Instead, the impulse response coefficients, in conjunction with an FIR digital filter, produce a smoothing effect of digital data. Thus, the impulse response coefficients have a useful, concrete, and tangible application. To distinguish the impulse response coefficients, from

mere numbers, claim 1 clearly recites "impulse response coefficients," in the context of a universal maximally flat FIR filter. (see e.g. claim 1). Thus, claim 1 recites a useful, concrete, and tangible result.

As discussed in the Response filed January 22, 2008, the tangible result produced by claim 1 is a finite-length sequences of numbers. The numbers are the exact values of the weighting coefficients that yield maximally flat FIR filter characteristics. When used as weighting coefficients, also known as impulse response coefficients, in an FIR digital filter, a smoothing effect is produced by the action of the coefficients. This filtering effect, which is produced by the steps of the claim, can be used to smooth and process arbitrary digital sequences.

Furthermore, the claims enable one to generate, on a computable readable medium using hardware resources, and in a computationally efficient and simple manner, the coefficients described above. These coefficients can be produced for any arbitrarily given filter specifications pertaining to the maximally flat type.

As further discussed in the Response filed January 22, 2008, Applicants note that the implementation of the claim requires computational resources in the form of hardware capability in order to perform arithmetic operations, and additional hardware resources for storage of the intermediate and final numerical results. Specifically, the specification discloses that the invention "relates to a computational method ... and to a computational program for the same." (see Specification at 0002). Furthermore, the specification describes that a common problem with computations involving binomial coefficients is

that they introduce very large integers to the intermediate steps of the computation, and that there are cases when limitations on hardware and software resources dictate the use of efficient means in computation of filter coefficients, and thus, disclose that embodiments of the invention require tangible physical components, such as hardware resources. (see Specification at 0004). Finally, the specification discloses that an embodiment of the invention is mostly suitable for real-time generation of the coefficients on a DSP chip because it may be easily implemented in a computational environment that has restrictions on the available hardware and software resources. (see Specification at 0074). Given these physical components, the claim transforms an initial sequence of trivial numbers, which is stored in the form of a numerical array embodied on a computer readable medium, to a final sequence of numbers for use in the physical realization of maximally flat FIR digital filters.

Thus, claim 1 produces a tangible result, which is the impulse response coefficients, and supports a practical application, which is smoothing of digital data with a frequency response of a maximally flat type.

Thus, for at least the reasons stated above, Applicants respectfully submit that claim 1 is not directed toward an abstract idea, and instead, produces a tangible result and supports a practical application. Thus, claim 1 recites patentable subject matter under 35 U.S.C. §101.

With respect to claim 2, the Office Action stated, "[s]ince the rejection of claim 1 was maintained, the rejection of claim 2 is similarly maintained." (see Office Action at

page 7, "Response to Arguments"). Applicants respectfully submit that claim 2 depends upon claim 1, and that claim 2 recites patentable subject matter under 35 U.S.C. §101 for the same reasons as claim 1.

With respect to claim 3, the Office Action stated, "[s]ince the program is recorded on a computer readable media, the rejection that the claim is directed to software (an abstract idea) is overcome. However, the claim contains abstract ideas that do not appear to produce a useful, concrete, and tangible result to support a practical application. Thus, the rejection is maintained." (see Office Action at page 8, "Response to Arguments"). Applicants respectfully submit that claim 3 recites patentable subject matter under 35 U.S.C. §101 for similar reasons as claim 1.

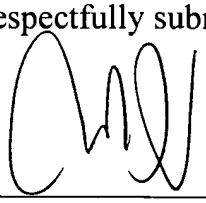
Therefore, Applicants respectfully submit that claims 1-3 recite patentable subject matter. Thus, Applicants respectfully request that this rejection be withdrawn.

For at least the reasons discussed above, Applicants respectfully submit that claims 1-3 recite allowable subject matter. It is therefore respectfully requested that all of claims 1-3 be allowed, and this application passed to issue.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, the applicants' undersigned representative at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, the applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,



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